

# Rodent Centrifuge Facility for ISS Life and Microgravity Science Research, Phase I

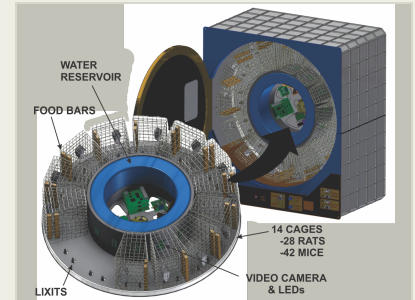
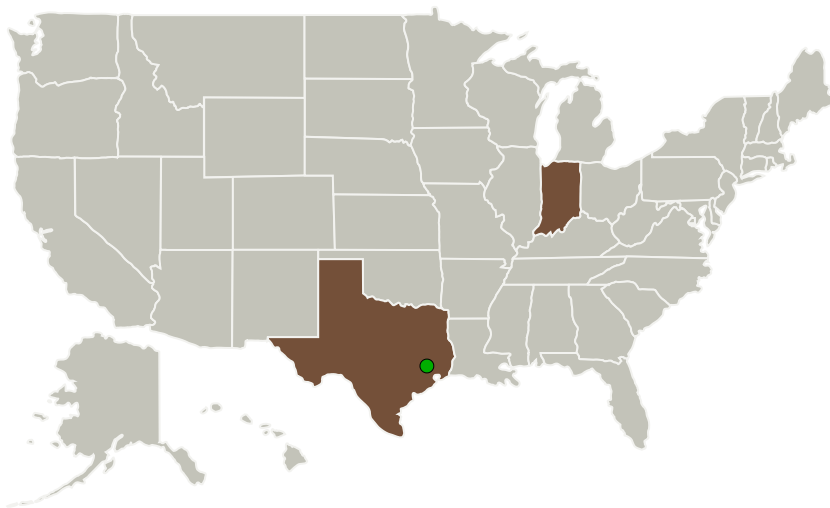
Completed Technology Project (2015 - 2015)



## Project Introduction

According to the decadal report titled, Life and Physical Sciences Research for a New Era of Space Exploration, a Report, "...the AHB Panel would be remiss if it did not strongly recommend an animal centrifuge capable of accommodating rats/mice at variable gravity levels." In response, Techshot proposes to develop a Rodent Centrifuge Facility (RCF) that utilizes eight EXPRESS Rack locker locations. Requiring only minor assembly on orbit, the large Techshot rodent centrifuge will consist of two separate four-locker pieces called quad housing units. The centrifuge rotor will accommodate as many as 14 modular rodent cages, which can be customized to accommodate either grouped (28 rats- 200 gram animals, 42 mice- 25 gram animals) or 14 individually-housed rats (up to 400 gram) or mice. Each cage will include ad libitum feeding, automated ad libitum water, LED day/night cycling, forced-air waste collection and environmental control, and continuous video monitoring. Animal access will be accomplished by the removal of individual cages, which will fit into a portable glovebox that can be installed on the front of the rodent centrifuge facility or at the ISS Microgravity Science Glovebox (MSG). The facility will be designed for a minimum of 30 days of unattended operation, and the accommodation of experiments lasting up to 90 days.

## Primary U.S. Work Locations and Key Partners



Rodent Centrifuge Facility for ISS Life and Microgravity Science Research, Phase I

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Organizations Performing Work	Role	Type	Location
Techshot, Inc.	Lead Organization	Industry	Greenville, Indiana
● Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas

## Primary U.S. Work Locations

Indiana	Texas
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## Project Transitions

▶ **June 2015:** Project Start

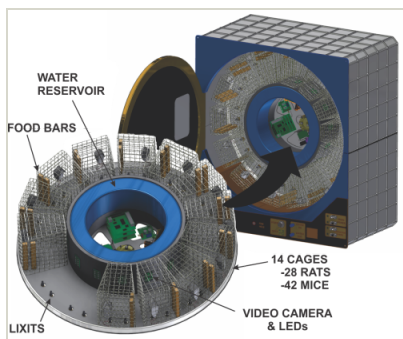
✓ **December 2015:** Closed out

**Closeout Summary:** Rodent Centrifuge Facility for ISS Life and Microgravity Science Research, Phase I Project Image

### Closeout Documentation:

- Final Summary Chart Image(<https://techport.nasa.gov/file/139420>)

## Images



### Briefing Chart Image

Rodent Centrifuge Facility for ISS Life and Microgravity Science Research, Phase I

(<https://techport.nasa.gov/image/136646>)

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Organization:

Techshot, Inc.

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

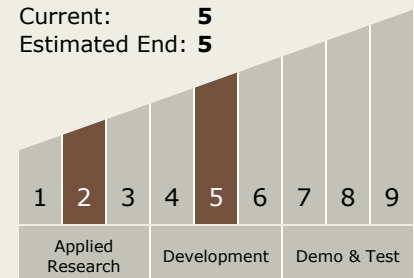
Carlos Torrez

### Principal Investigator:

John C Vellinger

## Technology Maturity (TRL)

Start: 2  
Current: 5  
Estimated End: 5



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## Technology Areas

### Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - └ TX06.1 Environmental Control & Life Support Systems (ECLSS) and Habitation Systems
    - └ TX06.1.3 Waste Management

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System